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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Application of Southern California Edison Company
(U338E) for Approval of Energy Efficiency Rolling
Portfolio Business Plan

and Related Matters

Application 17-01-013
(filed January 17, 2017)

Application 17-01-014
Application 17-01-015
Application 17-01-016
Application 17-01-017
(Consolidated)

**COALITION FOR ENERGY EFFICIENCY FINAL COMMENTS ON THE SCE, PG&E,
SDG&E AND SOCALGAS BUSINESS PLAN PROPOSALS**

September 25, 2017

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On behalf of the Coalition for Energy Efficiency

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I. INTRODUCTION

Pursuant to California Public Utilities Commission (“CPUC”) Rule 2.6 and the August 4, 2017 “Administrative Law Judges’ Ruling Clarifying July 25, 2017 Ruling and Denying, In Part, Pacific Gas and Electric Company’s Motion to Amend Its Application,” the Coalition for Energy Efficiency (“CEE” or “Coalition”) provides its final round of comments on the applications of Southern California Edison Company (“SCE”), San Diego Gas & Electric Company (“SDG&E”), Pacific Gas and Electric Company (“PG&E”), and Southern California Gas Company (“SoCalGas”) (collectively “IOUs”) for approval of their Energy Efficiency Rolling Portfolio Business Plans (“Business Plans”).

The CEE has protested approval of the IOU Business Plan applications on the grounds that they failed to adequately address workforce standards, workforce diversity and inclusion goals and workforce education and training (“WE&T”) alignment needs.¹ This failure conflicts with prior CPUC directives and the guidance and recommendations set forth in the California Energy Commission’s Existing Building Energy Efficiency Action Plan.

¹ In order to resolve factual disputes and clarify IOU proposals and factual claims, CEE and other stakeholders requested that workshops be held and an opportunity be provided for submittal of testimony and/or evidentiary hearings. The ALJ declined to provide these opportunities to stakeholders. Accordingly, the CEE hereby objects to any new information or claims that the IOUs may raise in opposition to these final comments on the grounds that stakeholders would not have been provided any opportunity to review and respond to such claims.

The IOUs have a long history of delay and avoidance in responding to guidance on these issues. The IOUs have perfected the tactic of “death by endless study” and of consistently interpreting any CPUC guidance on these issues as only suggestive, not directive. The IOU’s business plan proposals and data request responses clearly confirm that they once again have no intention of adopting meaningful workforce standards or workforce diversity and inclusion goals unless the Commission expressly orders them to take specific actions in its decision. Based on this long history of refusal, CEE and other stakeholders have recommended that the CPUC address these issues through the imposition of unambiguous conditions of approval.

II. SUMMARY OF RECOMMENDATIONS

In order to provide clear direction to the IOUs on these issues, CEE respectfully requests that the CPUC impose the following conditions of approval on the Business Plans:

A. Workforce Standards

1. All downstream and midstream HVAC energy efficiency measures installed, subsidized or paid for under a Program Administrator’s energy efficiency program portfolio shall be installed by journeymen with 5+ years of experience or apprentices currently enrolled in or having completed a federal or California state apprenticeship program.²
2. All downstream and midstream advanced lighting control installation, modification or maintenance measures installed, subsidized or paid for under a Program Administrator’s energy efficiency program shall be installed by workers that have been certified by the California Advanced Lighting Controls Training Program (CALCTP).³

² PG&E already requires this under its commercial HVAC quality installation/quality maintenance program. See PG&E’s Responses to CEE Data Request Questions 15 & 48 (Exhibit 1). Data Request Responses cited in this document are attached as Exhibits. Exhibit 1 contains a copy of the cited PG&E Responses; Exhibit 2 contains a copy of the cited SoCalGas responses; Exhibit 3 contains a copy of the cited SDG&E responses; and Exhibit 4 contains a copy of the cited SCE responses.

³ See Donald Vial Center for Employment in the Green Economy, Workforce Issues and Energy Efficiency Programs: A Plan for California’s Utilities (2014) (hereafter “EE Program Workforce Guidance Plan”) at p. 49 (recommending requiring CALCTP certification on all advanced lighting control projects) [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>]; see also ASWB/ODC, Lighting Control Training Assessment Study (April 8, 2016) at p. 83 (recommending that CALCTP be established as the “foundational component” for lighting control installer training). [Available at

3. Any contractor or subcontractor performing work on an energy efficiency project that is paid for, in whole or in part, by ratepayer funds (including through incentives, rebates, financing programs, grants, subsidies or services) having a total combined value of more than \$20,000 shall document that all work on the project will be performed by a skilled and trained workforce as defined by Public Contract Code section 22164, subdivision (c)(1).⁴
4. For energy efficiency measures not subject to any of the above requirements, each energy efficiency program proposal and implementation plan shall:
 - (a) Identify all knowledge, skills and abilities needed to ensure proper installation of any energy efficiency measures proposed to be installed, subsidized or paid for under the proposal.
 - (b) Identify all applicable workforce installer standards that would reduce the risk of lost energy savings from poor installation of energy efficiency measures, including any specific skills certification requirements and broader occupational training and experience requirements (such as journeymen and apprenticeship requirements).
 - (c) Require installers to meet all the workforce installer standards identified in compliance with subdivision (b) or demonstrate to the satisfaction of CPUC staff why such a requirement would not be feasible. Concern over potential disruption in workforce availability or contractor participation shall not be grounds for determining that a requirement is not feasible where such disruption can be addressed by requiring an annually-increasing percentage of incentive program participants to comply.

B. Job Opportunities for Disadvantaged Workers

1. All bid solicitation proposals and implementation plans for energy efficiency programs shall describe if and how the proposal supports participation by disadvantaged workers in the energy efficiency jobs created by the proposal,

http://www.energydataweb.com/cpucFiles/pdaDocs/1458/Lighting%20Controls%20Training%20Assessment%20Report_2016-02-29_Final.pdf]

⁴ See similar recommendation set forth in EE Program Workforce Guidance Plan at p. 50 (recommending requirement that 60 percent of jobsite workforce is comprised of journey persons or apprentices from a registered apprenticeship program in California) [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>].

including any applicable workforce diversity and inclusion goals or applicable employment partnerships with state-certified apprenticeship programs, community colleges or other organizations that have a proven track record of training and providing career opportunities to disadvantaged workers.

2. All downstream programs shall track the percentage of incentives verified to have been installed by contractors that have demonstrated a commitment to provide career pathway opportunities to workers from disadvantaged communities through the establishment of workforce diversity and inclusion goals or applicable employment partnerships with state-certified apprenticeship programs, community colleges or other organizations that have a proven track record of training and providing career opportunities to disadvantaged workers.
3. The IOUs are expressly authorized to establish requirements that contractors preselected by the IOUs or that have a direct contracting relationship with the IOUs must demonstrate a commitment to provide career pathway opportunities to workers from disadvantaged communities through the establishment of workforce diversity and inclusion goals or applicable employment partnerships with state-certified apprenticeship programs, community colleges or other organizations that have a proven track record of training and providing career opportunities to disadvantaged workers.
4. The goal of connecting disadvantaged workers to energy efficiency jobs is within the scope of the IOU WE&T and energy efficiency programs.
5. The IOUs shall provide preference to WE&T program proposals that further the goal of connecting disadvantaged workers to energy efficiency jobs either directly or through partnerships with state-certified apprenticeship programs, community colleges or other organizations that have a proven track record of training and providing career opportunities to disadvantaged workers.

C. Workforce Education and Training Alignment

1. WE&T programs shall support the Energy Commission's Workforce Alignment Action Plan development process;⁵

⁵ Workforce Alignment, Energy Efficiency Collaborative Facilitation, and Benchmarking Outreach Contract (Agreement 400-16-008), Exhibit A, Scope of Work at p. 15 [available at

2. WE&T programs shall be aligned with the recommendations of the Workforce Alignment Action Plan.
3. WE&T bid proposals and implementation plans shall set forth if and how the program aligns with or supports broader occupational training, certification, apprenticeship, and accredited degree offerings.
4. WE&T bid proposals and implementation plans shall set forth if and how the program aligns with goals for recruiting, training and placing disadvantaged workers in good jobs, including implementer qualifications, partnerships with apprenticeship programs, partnerships with community-based organizations that provide job placement, etc.

In addition, the CEE urges the CPUC to ensure that the energy efficiency programs provide for independent oversight of the program bidding process and the program implementation plans. This oversight should include the use of qualified Independent Evaluators and an opportunity for stakeholder review and comment. The CEE has set forth its position on these issues in its recent prior filings in this proceeding, and incorporates those filing by reference into these Final Comments.

III. COALITION FOR ENERGY EFFICIENCY MEMBER ORGANIZATIONS

The CEE is a coalition of environmental, energy, educational, labor and environmental justice organizations working together to support California's energy efficiency policy goals. Coalition members represent thousands of Californians who will be directly affected by both the environmental and economic impacts of the Business Plans. The CEE includes: (1) BlueGreen Alliance; (2) Sierra Club California; (3) California Community Colleges Chancellor's Office; (4) the Coalition for Clean Air; (5) Joint Committee on Energy and Environmental Policy; (6) Coalition of California Utility Employees; (7) IBEW-NECA California State Labor Management Cooperation Committee; (8) the California Labor Federation; (9) Western States Council of Sheet Metal, Air, Rail and Transportation Workers; (10) California State Pipe Trades Council; (11) Operating and Stationary Engineers, locals 39 and 501; (12) Avery Energy Enterprise; and (13) Cal SMACNA (California Association of Sheet Metal and Air Conditioning Contractors,

http://www.energy.ca.gov/business_meetings/2017_packets/2017-06-14/Item_05_400-16-008.pdf]; see also California Energy Commission, 2016 Existing Buildings Energy Efficiency Action Plan Update at pp. 50-53 [available at http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf].

National Association). (14) Strategic Concepts in Organizing and Policy Education (“SCOPE”) also joins in support of these comments.

IV. THE DECISION APPROVING THE BUSINESS PLANS MUST ADDRESS WORKFORCE STANDARDS AND INSTALLATION QUALITY

A. Business Plans Fail to Ensure Measures Are Installed by Qualified Workers

The IOU Business Plans fail to include *any* enforceable or meaningful goals, strategies, tactics or metrics to ensure energy efficiency measures are installed by adequately trained and skilled workers. The Business Plans also fail to provide sufficient details or rationales for why specific strategies were chosen and fail to demonstrate or describe how approaches advance the goal of ensuring workforce and installation quality for energy efficiency measures. The Business Plans do not require proposed efficiency programs to identify the knowledge, skills and abilities (“KSAs”) necessary to ensure proper installation and do not require program proposals or implementation plans to identify appropriate and applicable workforce standards for installation of the proposed program measures.

The IOUS have made clear through their failure to meaningfully address workforce standards and through their responses to the CEE’s data requests that they will not require installers of program energy efficiency measures to meet minimum qualification requirements unless the CPUC expressly orders them to take such action.⁶ Unless the CPUC directs specific action, the Business Plans will continue to allow ratepayer funds to subsidize energy efficiency projects that do not employ adequately trained and skilled workers, resulting in improperly installed systems, lost energy savings and potential safety risks.

PG&E’s Business Plan is the only Plan to even address workforce standards for its incentive programs – but its proposal is woefully inadequate. PG&E’s Business Plan states that:

“Additionally, PG&E will *consider* the appropriate workforce standard requirements, such as any required certifications, minimum performance standards, or pre-qualification process for specific programs in support of its energy efficiency portfolio. As applicable, PG&E will detail workforce standard requirements in each Implementation Plan (IPs).”⁷

⁶ See SDG&E Responses to CEE Data Request Questions 55, 56 (Exhibit 3); SDG&E Responses to Disputes over CEE Data Request Questions 50, 52 (Exhibit 3); PG&E Revised Responses to CEE Data Request Questions 62, 63, 64 (Exhibit 1); SoCalGas Response to CEE Data Request Questions 55, 56 (Exhibit 2.).

⁷ PG&E’s Energy Efficiency Business Plan 2018–2025, Residential chapter at p. 50, Commercial chapter at p. 56, Public chapter at p. 39, (emphasis added).

PG&E commits to think about workforce standards and detail workforce standard requirements “as applicable.” In response to data requests, PG&E clarified that this provision does not actually require each implementation plan to detail applicable workforce standard requirements.⁸ Rather, PG&E interprets its own language to mean that PG&E will *allow* third party program proposals the *discretion to choose* to include workforce standard requirements, and even then only if the proposal demonstrates that the standards are applicable and appropriate.⁹ PG&E was also unable to define the terms “applicable” and “appropriate” or to explain how it would determine that a workforce standard was applicable or appropriate.¹⁰

PG&E further stated that it *will not require* any incentive programs to determine whether applicable and appropriate workforce standards exist or even to identify the KSA’s needed to ensure a worker knows how to properly install an energy efficiency measure.¹¹ Finally, PG&E acknowledged that, *even when appropriate and applicable workforce standards are identified*, PG&E will not require incentive programs to impose these standards.¹²

In other words, the workforce standards strategy proposed in PG&E’s 2018-2025 Business Plan would allow every single one of PG&E’s incentive programs to be proposed, approved and implemented without identifying the KSA’s needed to ensure proper installation, without determining whether workforce standards would increase energy efficiency outcomes, and without requiring workforce standards even when applicable and appropriate workforce standards are identified. CEE objects to this sham proposal as made in bad faith and inconsistent with previous CPUC and Energy Commission clear guidance.

SCE does not propose *any* workforce standard strategy to ensure that its incentive measures are installed correctly. SCE claims that it will develop its portfolio to “focus on driving contractor’s and technician’s awareness and adoption of industry standards, including ANSI/ACCA 5 and ANSI/ACCA 9 standards for design, installation and performance verification of heating, ventilation and air conditioning (“HVAC”) installations.”¹³ However, SCE’s Business Plan fails to adopt any goals or strategies that would ensure that contractors and technicians installing ratepayer-subsidized HVAC equipment would actually be trained in, or

⁸ PG&E Responses to CEE Data Request Questions 12 & 14 (Exhibit 1).

⁹ PG&E Responses to CEE Data Request Questions 12 & 14 (Exhibit 1).

¹⁰ PG&E Responses to CEE Data Request Questions 12, 44, 47 (Exhibit 1).

¹¹ PG&E Responses to CEE Data Request Questions 12, 44, 46, 47 (Exhibit 1).

¹² PG&E Responses to CEE Data Request Questions 12, 44, 46, 47 (Exhibit 1).

¹³ SCE Energy Efficiency Business Plan 2018-2025 at p. 57.

even be aware of, these (or any other) standards.¹⁴

SDG&E adopts a vague and general goal to “improve residential HVAC installation and maintenance,” but fails to set forth any standards or goals to ensure that workers installing and maintaining HVAC systems have the necessary training and experience.¹⁵ SDG&E’s Business Plan does not even require Implementation Plans to “consider” workforce standards, much less identify and require appropriate standards.

The SoCalGas and SDG&E Business Plans state that they will rely on “qualified contractors” to properly install energy efficient measures.¹⁶ However, data requests confirm that their definition of a qualified contractor is simply a “licensed contractor.”¹⁷ Licensing alone does not ensure that a contractor’s workers have sufficient training and qualifications to properly install an energy efficiency measure. **A contractor is not the same as an installer.** While a small contractor may do the actual installation of a project, most contractors hire employees to do the actual work. Contractors’ licenses do not impose any training or qualification requirements on a contractor’s employees.

The SoCalGas and SDG&E Business Plans also rely on a vaguely defined strategy of educating customers and trade professionals on the “value of properly installed and maintained systems” and the “value of skilled workers.”¹⁸ Vague platitudes about the “value of properly installed and maintained systems” and the “value of skilled workers” are meaningless without defining a “skilled worker” and without identifying what training, certifications or qualifications would demonstrate that a worker has the skills and training needed to properly install or maintain a system. This is not a meaningful substitute for actual workforce standards. In response to Data Requests, the IOUs were unable to explain how a customer or trade professional is supposed to determine if workers are adequately “skilled”.¹⁹

¹⁴ The Western HVAC Performance Alliance (WHPA) has identified 170 industry-recognized certifications for the HVACR segment alone [available at <http://www.performancealliance.org/CertificationsAccreditations/tabid/2473/e.>]

¹⁵ SDG&E Energy Efficiency Business Plan 2018-2025 at p. 57.

¹⁶ See, e.g., SoCalGas Energy Efficiency Business Plan 2018-2025 at 89, 91 (contractor incentives), 94 (Direct Install); SDG&E Energy Efficiency Business Plan 2018-2025 at p. 21 (Residential QI/QM), 189 (proposing to train customers on the value of hiring “qualified” professionals).

¹⁷ SoCalGas Response to CEE Data Request Question 12 (Exhibit 2); SDG&E Response to CEE Data Request Question 12 (Exhibit 3).

¹⁸ See, e.g., SoCalGas Energy Efficiency Business Plan 2018-2025 at pp. 111, 113-115, 127-129, SDG&E Energy Efficiency Business Plan 2018-2025 at pp. 200, 210.

¹⁹ SoCalGas Responses to CEE Data Request Questions 13 & 41 (Exhibit 2); SDG&E Responses to CEE Data Request Questions 13 & 41 (Exhibit 3).

SoCalGas proposes a metric of “increasing the number of properly installed and maintained HVAC systems by 15% over 2015 levels by 2025.”²⁰ This proposed metric is arbitrary and meaningless. First, the proposed goal of a 15% improvement over 10 years is risibly inadequate. Second, no meaningful baseline exists on which to apply the proposed goal of a 15% improvement. In response to CEE’s initial data request, SoCalGas was unable to provide a coherent explanation for how existing or future installation quality levels would be determined.²¹

When asked again in a follow-up data request, SoCalGas stated that its installation quality levels would be measured by “program participation” levels.²² SoCalGas claimed that its general requirement that program participants comply with code requirements would be sufficient to ensure that HVAC systems were properly installed.²³

CEE strongly disagrees with the assertion that all HVAC systems installed by SoCalGas program participants are installed properly. This claim is conclusory, lacks any evidentiary support and is contradicted by numerous studies showing that program measures are not being installed correctly.²⁴ Moreover, this claim makes no sense. If SoCalGas is claiming that all HVAC systems installed by program participants are installed correctly, then how does it propose to increase the number of properly installed HVAC systems under its programs by 15%?²⁵

B. The Failure to Address Workforce Standards in the Business Plans Conflicts with CPUC and Energy Commission Guidance

The failure to address workforce standards in the Business Plans conflicts with the Decision Providing Guidance for Initial Energy Efficiency Rolling Portfolio Business Plan Filings (Decision 16-08-019). In that decision, the CPUC confirmed that it expects the Business Plans “to address the issue of ensuring and continuously improving workforce and installation quality for energy efficiency measures.”²⁶ The CPUC also confirmed that its prior directives to the IOUs to address workforce standards remained valid.²⁷

²⁰ SoCalGas Energy Efficiency Business Plan 2018-2025 at p. 115.

²¹ SoCalGas Response to CEE Data Request Questions 15 (Exhibit 2).

²² SoCalGas Response to CEE Data Request Questions 42 (Exhibit 2).

²³ SoCalGas Response to CEE Data Request Questions 42 (Exhibit 2).

²⁴ See, e.g., studies cited in EE Program Workforce Guidance Plan, Appendix 2B [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>].

²⁵ SoCalGas has made statements suggesting it may drop this proposed installation quality metric, but has not identified any replacement or taken any action to actually remove this proposal.

²⁶ D. 16-08-019 at pp. 63, fn. 24 & 92.

²⁷ D. 16-08-019 at pp. 63, fn. 24 & 92.

Starting with the 2008 Long-Term Energy Efficiency Strategic Plan, there has been a decade of CPUC guidance calling for IOUs to ensure that energy efficiency measures are installed by an adequately trained workforce. The 2008 Strategic Plan requires that, by 2020, “California’s workforce is *trained and fully engaged* to provide the human capital necessary to achieve California’s economic energy efficiency and demand-side management potential.”²⁸

CPUC directives subsequent to the 2008 Strategic Plan continued to call for the IOUs to address the quality and skills of the workforce installing energy efficiency measures. In 2012, the IOUs were ordered in the Decision Approving 2013-2014 Energy Efficiency Programs and Budgets to develop a comprehensive approach to increasing the demand for skilled workers through skills standards and certification requirements for utility incentive programs.²⁹ The result of this directive was the ratepayer-funded 2014 workforce guidance plan for utility energy efficiency programs that was prepared by the University of California, Berkeley, Donald Vial Center for Employment in the Green Economy (“EE Program Workforce Guidance Plan”), which set forth specific recommendations for the utilities to adopt.³⁰

In its Decision Establishing Energy Efficiency Savings Goals and Approving 2015 Energy Efficiency Programs and Budgets, the CPUC directed the IOUs to describe how they would incorporate the EE Program Workforce Guidance Plan recommendations for addressing these issues and to describe which recommendations the IOUs would initiate in 2015.³¹ The IOUs responded by filing a February 23, 2015 Tier 2 Advice Letter that committed to taking preliminary steps toward implementing the following Guidance Plan recommendations:

- Adoption of “skill certification requirements for advanced lighting controls and HVAC Quality Installation and Quality Maintenance and other available skill standards and certification guidance.”
- Implementation of the recommendation to require CALCTP certification for all ratepayer-subsidized advanced lighting control system.
- Establishment of prevailing wage and targeted hire goals for contractors that are preselected by the IOUs or have a direct contracting relationship with the IOUs.

²⁸ California Energy Efficiency Strategic Plan (2011 Update) at p. 70. (Emphasis provided.)

²⁹ D.12-11-015 at p. 3, 89-91, 127-128.

³⁰ EE Program Workforce Guidance Plan at pp. 49-50 [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>.]

³¹ D.14-10-046 at p. 102.

None of these recommendations have been implemented. Data requests confirm that the IOUs did not adopt any new skill certification requirements after filing the Tier 2 Advice letter, did not establish any prevailing wage requirements and did not establish any targeted hire goals for contractors.³² The IOUs justify this failure on the ground that their 2015 Tier 2 Advice Letter was merely a commitment to “consider” implementation of these recommendations, not a commitment to actually begin implementing the recommendations.

Despite ratepayers spending millions of dollars for its development, the IOUs have not adopted a single new workforce standard since the EE Program Workforce Guidance Plan came out and have ignored the plan entirely in their business plan filings. As a result, almost no progress has been made on this goal in the decade since the CPUC first directed the IOUs in 2008 to ensure that a trained workforce is engaged to perform energy efficiency work. The Business Plans, for example, acknowledge that the majority of HVAC installers still don’t have the technical knowledge, skills, or abilities to properly install systems.³³

For many efficiency measures, poor quality installation is not the result of a lack of available training.³⁴ The apprenticeship system, community colleges, and specialty certifications, such as CALCTP lighting control installer training, are working to create a skilled and qualified workforce. But these efforts are systematically undermined by IOU policies that reward contractors even if they employ workers that do not have the training necessary to ensure proper installation and achieve maximum energy savings.

The IOUs’ default policy, however, is to oppose adoption of any workforce standards in order to maximize the number of contractors that can participate in their programs.³⁵ This policy

³² SoCalGas Responses to CEE Data Request Questions 21 & 43 (Exhibit 2); SDG&E Responses to CEE Data Request Questions 17, 20 & 42 (Exhibit 3); SCE Responses to CEE Data Request Questions 22, 25 & 45 (a-c) (Exhibit 4); PG&E Responses to CEE Data Request Questions 17, 20 & 21 (Exhibit 1). The IOUs have continued to impose certain pre-existing workforce standard requirements for their Quality Maintenance program that, but no new or improved requirements were adopted.

³³ See SCE Energy Efficiency Business Plan 2018-2025 at p. 63 (stating that there are a limited number of contractors who are even able to implement industry standards for HVAC quality installation); see also SDG&E at p. 216 (“trade professionals don’t have the technical knowledge, skills, or abilities to meet SDG&E’s savings goals”); PG&E Business Plan, Residential Appendix at p. 30 (finding “high failure rates for job performance on routine tasks” and finding that “less than half of HVAC technicians operating in California are aware of the Air Conditioning Contractors of America (ACCA) standards for work quality”).

³⁴ See SDG&E Energy Efficiency Business Plan 2018-2025 at p. 214; PG&E Energy Efficiency Business Plan 2018-2025, Appendix WE&T at p. 8; SCE Energy Efficiency Business Plan 2018-2025 at p. 57; SoCalGas Energy Efficiency Business Plan 2018-2025 at p. 377.

³⁵ See SDG&E Responses to CEE Data Request Questions 55, 56 (Exhibit 3); SDG&E Responses to Disputes over CEE Data Request Questions 50, 52 (Exhibit 3); PG&E Revised Responses to CEE Data Request Questions 62, 63, 64 (Exhibit 1); SoCalGas Response to CEE Data Request Questions 55, 56 (Exhibit 2).

creates an economic disincentive for contractors to invest in worker training and employ qualified workers. Without workforce standards, the IOUs not only fail to transform the contractor marketplace, they perpetuate the current system where the majority of installers don't have the technical knowledge, skills, or abilities necessary to properly install systems.

C. The Refusal to Incorporate Workforce Standards into Energy Efficiency Program Requirements Conflicts with the Existing Building Energy Efficiency Action Plan

The IOUs refusal to ensure energy efficiency measures will be installed by an adequately trained and skilled workforce also directly conflicts with the goals and strategies adopted by the California Energy Commission in its 2016 Existing Building Energy Efficiency Action Plan Update. The 2016 Update adopts a goal to “ensure that a certified, high performing workforce will be engaged to deliver energy efficiency retrofits, thereby transforming efficiency incentive work from a low-cost bidder framework to a lowest-cost qualified bidder framework.”³⁶ To achieve this goal, the Action Plan expressly recommends that PAs incorporate workforce standards into the energy efficiency program requirements.³⁷

The Legislature directed the Commission to adopt the Existing Building Energy Efficiency Action Plan in order to coordinate future action by the Energy Commission, the CPUC, and other relevant state actors. Unless the CPUC requires consistency between the Business Plans and the Existing Building Energy Efficiency Action Plan, the CPUC will render the Action Plan yet another meaningless guidance document that the utilities are free to ignore. The Action Plan can be put on the shelf to gather dust with the EE Program Workforce Guidance Plan.

D. The Refusal to Address Workforce Quality Is a Barrier to Meeting California's Energy Efficiency Goals

The refusal of the IOUs to require programs to include qualification standards for installers of energy efficiency measures is a barrier to meeting California's energy efficiency and greenhouse gas reduction goals. Improper equipment installation in energy efficiency retrofits is too often the norm, rather than the exception. Program analyses have consistently found that

³⁶ California Energy Commission, 2016 Existing Buildings Energy Efficiency Action Plan Update at p. 53 [available at http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf].

³⁷ California Energy Commission, 2016 Existing Building Energy Efficiency Action Plan Update at p. 50.

actual savings are substantially below projected savings, resulting in a persistent and significant gap between reported and evaluated savings across the PA energy efficiency incentive portfolios.³⁸ Studies have found that actual energy efficiency savings from incentive programs are as little as 51% of expected savings when evaluated post-installation.³⁹ These shortfalls in savings represent significant lost opportunities.

This gap is most prevalent in replacement HVAC systems, where the efficiency of equipment is highly dependent on the quality of its installation.⁴⁰ IOU-funded studies, however, show that the majority of residential HVAC installers have no training in any of the industry standards for HVAC installation.⁴¹ A study for the California Energy Commission reported that up to 85% of replacement HVAC systems were installed or designed incorrectly, resulting in substantial unrealized energy savings.⁴²

Similar gaps between expected savings and realized savings have also been found in installations of lighting control systems. One post-installation evaluation found that automatic day-lighting controls failed to perform as expected in 7 out of 7 tests, and occupancy sensors failed to perform as expected in 2 out of 3 tests. All of the failures were due to design, installation, or calibration issues.⁴³ In contrast, when lighting controls were installed by technicians who had obtained CALCTP lighting control installation training and certification, IOU-funded studies found significant energy savings and increased cost effectiveness.⁴⁴

³⁸ EE Program Workforce Guidance Plan at pp. 32-34 and Appendix 2B [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>].

³⁹ EE Program Workforce Guidance Plan at pp. 32-34 and Appendix 2B [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>]; California Energy Commission, Strategic Plan to Reduce the Energy Impact of Air Conditioners (June 2008), CEC-400-2008-010 at p. 5 (poor quality installation of cooling systems results in a 20-30 percent increase in energy use).

⁴⁰ EE Program Workforce Guidance Plan at pp. 32-34 and Appendix 2B [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>].

⁴¹ See SCE Energy Efficiency Business Plan 2018-2025 at p. 63 (stating that there are a limited number of contractors who are even able to implement industry standards for HVAC quality installation); see also SDG&E at p. 216 (“trade professionals don’t have the technical knowledge, skills, or abilities to meet SDG&E’s savings goals”); PG&E Business Plan, Residential Appendix at p. 30 (finding “high failure rates for job performance on routine tasks” and finding that “less than half of HVAC technicians operating in California are aware of the Air Conditioning Contractors of America (ACCA) standards for work quality”).

⁴² EE Program Workforce Guidance Plan at pp. 32-34 and Appendix 2B [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>].

⁴³ EE Program Workforce Guidance Plan at pp. 32-34 and Appendix 2B [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>].

⁴⁴ EE Program Workforce Guidance Plan at pp. 32-34, 47 and Appendix 2B [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>].

The projected energy savings delivered by the utility energy efficiency programs are regularly overestimated because they do not take into account lost savings from poor installation. In their responses to data requests, SCE and SDG&E each acknowledge that energy savings and cost-effectiveness calculations for its energy efficiency programs do not take into account the risk of lost energy savings due to poorly installed energy efficiency measures.⁴⁵ PG&E stated that it “believes” that lost energy savings due to poorly installed energy efficiency measures are taken into account, but was unable to provide any documentation in support of this claim or to identify how, and to what extent, these lost savings were taken into account.⁴⁶

SoCalGas stated that its Quality Maintenance HVAC programs are the only programs whose energy savings are discounted to take into account the risk of lost energy savings due to poorly installed measures.⁴⁷ Not coincidentally, the Quality Maintenance HVAC program is the only program SoCalGas identifies as requiring contractors to hold specific HVAC Excellence certifications and that PG&E identifies as requiring the use of journeymen or apprentices from State-certified apprenticeship programs.⁴⁸

The energy savings lost due to the use of untrained and unqualified workers reduce the cost-effectiveness of energy efficiency program measures. They are also a significant barrier to achieving California’s energy efficiency goals both in the short term and long term. The stranded, unrealized energy savings are locked in for the lifespan of the improperly installed equipment or system.

E. Workforce Standards Are Necessary to Protect Health and Safety

The use of a skilled and trained workforce to install energy efficiency incentive measures is also a safety issue. Poorly installed electrical components, lighting systems, or HVAC systems can result in fire hazards or hazards related to poor indoor air quality, gas leaks or carbon monoxide poisoning. Poorly installed plumbing, insulation, solar panels, roofs, or windows can result in leaks, mold and sanitation issues. Poorly installed energy efficiency measures thus not only strand energy savings, they also increase the likelihood that these ratepayer-funded measures will put customers at risk. The IOUs continued focus on the quantity of installations

⁴⁵ SCE Response to CEE Data Request Question 44 (a-d) (Exhibit 4); SDG&E Responses to CEE Data Request Questions 9, 10 & 11 (Exhibit 3).

⁴⁶ PG&E Responses to CEE Data Request Questions 42 & 43 (Exhibit 1).

⁴⁷ SoCalGas Response to CEE Data Request Question 40 (Exhibit 2).

⁴⁸ PG&E Responses to CEE Data Request Questions 15 & 48 (Exhibit 1) and SoCalGas Response to CEE Data Request Question 17 (Exhibit 2).

rather than the quality of installations is a decision to ignore the safety impacts from energy efficiency measures installed by a workforce that is not skilled and trained.

F. Specific Workforce Standards Have Already Been Developed By Industry that Are Ready to Be Adopted

The refusal of the IOUs to require compliance with workforce standards is not due to the lack of available standards.⁴⁹ Industry has already developed workforce training standards for the vast majority of construction work through the development of certified apprenticeship program curriculum, community college occupational degree programs, specialty certification programs, and training in installation standards for specific equipment or systems.

For example, the CALCTP advanced lighting control installer training and certification program was developed by industry stakeholders including manufacturers, labor, contractors, and academics.⁵⁰ CALCTP training is available across the state to both union and nonunion workers and is offered by Community Colleges, utility Energy Centers and apprenticeship training centers.⁵¹ The EE Program Workforce Guidance Plan expressly recognizes the CALCTP program as a model workforce standard that should be emulated in other sectors.⁵²

State-certified apprenticeship programs are the best example of industry developing training requirements to ensure workers hired by contractors have the skills necessary to install energy efficiency measures correctly and safely. Apprenticeship program training curricula has been developed and refined over many decades and includes specific training on energy and water efficiency measures.⁵³ Moreover, this training is independently reviewed and approved by the California Division of Apprenticeship Standards.

Because of its effectiveness, apprenticeship training is a common requirement for many types of projects that seek to ensure quality installation. The Public Contract Code, for example

⁴⁹ See SDG&E Energy Efficiency Business Plan 2018-2025 at p. 214; PG&E Energy Efficiency Business Plan 2018-2025, Appendix WE&T at p. 8; SCE Energy Efficiency Business Plan 2018-2025 at p. 57; SoCalGas Energy Efficiency Business Plan 2018-2025 at p. 377.

⁵⁰ See <https://www.calctp.org/what-calctp>; see also Comments of CALCTP on RTR for the Lighting Controls Training Assessment (ASWB and ODC, Calmac ID #SCE0392.01) (Exhibit 5).

⁵¹ See <https://www.calctp.org/what-calctp>; see also Comments of CALCTP on RTR for PG&E Dimming Ballast and CALCTP Midstream Trial Assessment (TRC, ED Work Order #2030a, Calmac ID #PGE03057.02) (Exhibit 6).

⁵² EE Program Workforce Guidance Plan at pp. 114-115 [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>].

⁵³ See EE Program Workforce Guidance Plan at p. 158 (Table 7.4 Green Innovation in Building Trades Apprenticeship Programs) [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>].

requires certain design-build projects to use a skilled and trained workforce.⁵⁴ The Public Contract Code skilled and trained workforce provisions ensure proper installation by requiring the workforce to include a minimum percentage of installers that have completed relevant certified apprenticeship training programs. The Education Code follows this template to require the use of a skilled and trained workforce for many school construction projects.⁵⁵

Similarly, PG&E requires HVAC energy efficiency measures under its Commercial HVAC Quality Installation/Quality Maintenance program to be installed by journeymen with 5+ years of experience or apprentices currently enrolled in or having completed a federal or California state apprenticeship program.⁵⁶ (PG&E, however, does not require quality installation in any of its other HVAC energy efficiency programs.)

In light of the numerous studies showing that poor installation outcomes are particularly common in HVAC systems and advanced lighting control systems, minimum workforce standards should be *immediately* imposed for all efficiency programs targeting these systems. The CPUC should follow PG&E's lead from its commercial HVAC Quality Installation and Quality Maintenance Program and require all ratepayer-subsidized HVAC measures to be installed by journeymen with five or more years of experience or by enrollees or graduates of certified California or Federal apprenticeship programs. The CPUC should also follow the recommendations of the EE Program Workforce Guidance Plan to require CALCTP certification for efficiency programs that involve installation of advanced lighting control systems. For large projects that receive substantial ratepayer funding, the CPUC should require the use of a "skilled and trained workforce" as defined in the Public Contract Code.

For projects not addressed by the above standards, the CPUC should ensure that workforce standards are considered at the design stage. Program proposals and Implementation Plans should be required to identify the KSAs necessary to ensure proper installation and to identify any applicable workforce standards.

G. CEE's Recommended Conditions of Approval to Address Workforce Standards

Building on the available, existing industry standards and on the recommendations set forth in the EE Program Workforce Guidance Plan, CEE respectfully requests the CPUC to

⁵⁴ Public Contract Code § 22164, subd. (c).

⁵⁵ See, e.g., Education Code § 17407.5.

⁵⁶ PG&E Responses to CEE Data Request Questions 15 & 48 (Exhibit 1).

impose the following requirements as a condition of its approval of the IOU Business Plans:

- (1) All downstream and midstream HVAC energy efficiency measures subsidized or paid for under a Program Administrator's energy efficiency program portfolio shall be installed by journeymen with 5+ years of experience or apprentices currently enrolled in or having completed a federal or California state apprenticeship program.
- (2) All downstream and midstream advanced lighting control installation, modification or maintenance measures subsidized or paid for under a Program Administrator's energy efficiency program shall be installed by workers that have been certified by the California Advanced Lighting Controls Training Program (CALCTP).
- (3) Any contractor or subcontractor performing work on an energy efficiency project that is paid for, in whole or in part, by ratepayer funds (including through incentives, rebates, financing programs, grants, subsidies or services) having a total combined value of more than \$20,000 shall document that all work on the project will be performed by a skilled and trained workforce as defined by Public Contract Code section 22164, subdivision (c)(1).
- (4) For energy efficiency measures not subject to any of the above requirements, each energy efficiency program proposal and implementation plan shall:
 - (a) Identify all knowledge, skills and abilities needed to ensure proper installation of any energy efficiency measures proposed to be installed, subsidized or paid for under the proposal.
 - (b) Identify all applicable workforce installer standards that would reduce the risk of lost energy savings from poor installation of energy efficiency measures, including any specific skills certification requirements and broader occupational training and experience requirements (such as journeymen and apprenticeship requirements).
 - (c) Require installers to meet all the workforce installer standards identified in compliance with subdivision (b) or demonstrate to the satisfaction of CPUC staff why such a requirement would not be feasible. Concern over potential disruption in workforce availability or contractor participation

shall not be grounds for determining that a requirement is not feasible where such disruption can be addressed by requiring an annually-increasing percentage of incentive program participants to comply.

H. IOUs’ Objections to the Imposition of Workforce Standards Lack Credibility and Are Inconsistent with Legislative, CPUC and Energy Commission Guidance and Direction

The IOUs have raised the following arguments against imposing workforce standards:

1. Response to Claim that Workforce Standards Might Impact Contractor Participation.

The IOUs have stated that they object to workforce standards because such requirements might bar some contractors from participating in ratepayer-subsidized energy efficiency programs. This is the intent of such a policy – not an unintended effect. Workforce standards will only transform the marketplace by rewarding contractors that invest in a skilled and trained workforce. Contractors who do not use qualified workers to install energy efficiency measures should be barred from participating in these programs. There is no inherent right for a contractor to participate in the billions of dollars a year ratepayer subsidized environmental efficiency economy created by ratepayer funds. If they wish to participate in this economy they should be required to ensure their workers have the proper training and experience necessary to ensure quality installation and expected energy efficiency performance outcomes.

If a workforce standard policy is going to transform the market, it needs to require higher standards than the market currently meets. The whole point of workforce standards is to incentivize more contractors to meet these standards. If insufficient numbers of workers are available to meet a particular requirement, that requirement should be phased in over a couple of years to allow contractors an opportunity to meet the requirement. If a standard is set based on what requirements most workers currently meet, the Commission is not engaged in market transformation.

2. Response to Claim that Workforce Standards Would Exclude “Qualified” Workers

IOUs have also claimed they oppose the adoption of any workforce standards that could potentially exclude some “qualified” workers from being employed to install energy efficiency measures. The claim that workforce standards will exclude “qualified workers” is classic

doublespeak and misdirection. The whole point of workforce standards is to set a reliable, objective definition of a “qualified” worker. Just because someone might have the ability to install an energy efficiency measure correctly does not mean they are “qualified.” A self-taught pilot might be able to fly your plane, but you wouldn’t let an airline hire him or her as a pilot without a pilot’s license. No objective workforce standard can encompass all persons with the “ability” to install a measure properly. Workforce standards must be based on uniform, objective, verifiable requirements that can be relied upon to demonstrate that a worker has the training and skills necessary to properly and safely install an energy efficiency measure.

By claiming they are concerned about excluding potentially “qualified” workers, the IOUs are saying they would rather have their program energy efficiency measures installed by unqualified workers and fail to achieve assumed energy savings than to set forth an objective standard that would reliably demonstrate a workers skills and qualifications. Simply put, the IOUs have already adopted a workforce standard policy and that policy is to allow untrained, unqualified workers to continue to install ratepayer-subsidized energy efficiency measures.

3. Response to Claim that Workforce Standards Would Not Be Cost-Effective

The IOUs claim that further study is needed to demonstrate that workforce standards would be cost effective. This claim is not supported by any evidence and contradicts the findings of the EE Program Workforce Guidance Plan. The U.C. Berkeley researchers who prepared the Plan stated that they reviewed “a significant body of evidence” on the costs of workforce standards and “found no credible evidence that contractor and workforce standards raise costs that are not offset by benefits.”⁵⁷

Moreover, this argument is disingenuous given that, with the exception of the SoCalGas Quality Maintenance HVAC program, the IOUs fail to take into account the impact of poor installation in their cost-effectiveness calculations.⁵⁸ The IOUs have had no issue assuming that it is cost-effective not to impose workforce standards, but suddenly object to imposing standards based on unsupported speculation that they would not be cost-effective. If a program cannot be cost-effective if it ensures quality installation, then its assumptions regarding energy savings and

⁵⁷ EE Program Workforce Guidance Plan at pp. 49 and Appendix 2B [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>].

⁵⁸ See SCE Response to CEE Data Request Question 44 (a-d) (Exhibit 4); SDG&E Responses to CEE Data Request Questions 9, 10 & 11 (Exhibit 3); PG&E Responses to CEE Data Request Questions 42 & 43 (Exhibit 1); SoCalGas Response to CEE Data Request Question 40 (Exhibit 2).

cost-effectiveness when measures are installed without any workforce standards are inherently suspect. Studies show poor installation can result in energy savings losses of up to 50%.⁵⁹ Without workforce standards, the utilities are claiming illusory energy savings. If utilities are going to be allowed to assume that measures are installed correctly, then they should be required to ensure the workers installing the measures have the training and expertise needed to do the work right.

Moreover, workforce standards are inherently cost-effective in the long-term because they provide savings that go well beyond the standard's impact on the cost-effectiveness for an individual energy efficiency measure. Once a workforce standard is met by an individual, the individual retains this training for all other projects he or she works on with little to no additional cost to his employer. Workforce standards also have inherent market transformation impacts by encouraging more contractors to invest time and money into worker training. This impact transcends individual ratepayer subsidized projects because the same contractors and workers will also work on non-EE program projects.

In addition, the specific requirements proposed by CEE for HVAC and Lighting Control measures have already been determined to be cost-effective. PG&E already requires the use of journeymen and apprentices for its commercial HVAC QI/QM programs without any evidence that this requirement has prevented the program from being cost-effective.⁶⁰

IOU-funded studies have also already found that requiring CALCTP training for installers of lighting controls is cost effective.⁶¹ Evidence from six pilot studies demonstrated not only increased energy savings, but also actual customer cost savings in the range of 10-30% for the installation of advanced lighting controls by a CALCTP-certified contractor versus a non-certified contractor.⁶²

The proposal to require compliance with the Public Contract Code skilled and trained workforce requirements is limited to larger projects with substantial ratepayer subsidies. These

⁵⁹ [available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>] at pp. 32-34 and Appendix 2B; California Energy Commission, Strategic Plan to Reduce the Energy Impact of Air Conditioners (June 2008), CEC-400-2008-010 at p. 5 (poor quality installation of cooling systems results in a 20-30 percent increase in energy use).

⁶⁰ PG&E Responses to CEE Data Request Questions 15 & 48 (Exhibit 1).

⁶¹ EE Program Workforce Guidance Plan at pp. 32-34, 47 and Appendix 2B[available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>].

⁶² EE Program Workforce Guidance Plan at pp. 32-34, 47 and Appendix 2B[available at <http://laborcenter.berkeley.edu/workforce-issues-and-energy-efficiency-programs-a-plan-for-californias-utilities/>].

requirements provide for a crew mix and thus limit their impact on cost-effectiveness. Moreover, once workers are properly trained, there is no additional cost to complying with these requirements.

Finally, the proposal to require bid proposals to identify KSAs and potential workforce standards does not require compliance with such standards that are not feasible.

4. Response to Claim that CALCTP Training Shouldn't Be Required Because Lighting-Specific Training May Be Equally Effective

IOUs have also stated that they oppose requiring CALCTP certification on the grounds that the ratepayer-funded Lighting Control Training Assessment Study⁶³ found that lighting-control-manufacturer training may be equally effective. First, this is a straw argument because the IOUs are not proposing that manufacturer training be required as an alternative option to CALCTP certification. Rather they are proposing that no training be required at all. Second, the claim that lighting manufacturer training may be equally effective is the exact opposite of what that study concluded.

The Lighting Control Training Assessment Study determined that CALCTP Installer certification fills important gaps that are not met by manufacturer training.⁶⁴ The report found:

- “Some installers work on projects using products from manufacturers that do not provide installer training on their controls. There appears to be no appropriate source of relevant training for these installers other than the CALCTP training.”⁶⁵
- “Many installers work on projects that include components from multiple manufacturers. Even the best available installation training from manufacturers does not include much if any content on how to work with heterogeneous controls configurations, and none of the manufacturer training has hands-on practice with ‘mixed-manufacturer’ installation. The CALCTP course does include components from multiple manufacturers and includes hands-on labs working with them.”⁶⁶

⁶³ ASWB/ODC, Lighting Control Training Assessment Study (April 8, 2016). [Available at http://www.energydataweb.com/cpucFiles/pdaDocs/1458/Lighting%20Controls%20Training%20Assessment%20Report_2016-02-29_Final.pdf.]

⁶⁴ ASWB/ODC, Lighting Control Training Assessment Study (April 8, 2016) at p. 80. [Available at http://www.energydataweb.com/cpucFiles/pdaDocs/1458/Lighting%20Controls%20Training%20Assessment%20Report_2016-02-29_Final.pdf.]

⁶⁵ Ibid.

⁶⁶ Ibid.

- “Even when manufacturers provide ‘general concept’ or Title 24 Part 6 training that would help installers regardless of the products they work with, it often is difficult to identify and enroll in that training.”⁶⁷

The report found the strength of CALCTP training over manufacturer training includes: (1) CALCTP training covers a “variety of control types; variety of brands”; (2) CALCTP training covers “[h]ow different brands of products can be appropriately configured together in one system”; and (3) CALCTP training provides “[e]xtensive hands-on practice and assessment” that is not provided by manufacturer training.⁶⁸

The Report recommended that CALCTP work with manufactures to provide manufacture-specific modules and to ensure CALCTP training remains updated to reflect the latest technology and products. CALCTP already incorporates both of these recommendations.⁶⁹ CALCTP collaborates closely with manufacturers. CALCTP has an advisory committee of advanced lighting control manufacturers in order to keep its certification programs up to date with their newest products and technology. CALCTP also provides continuing education opportunities on specific manufacturer products. Manufacturers’ training modules are uploaded to the CALCTP website for additional training for certified installer contractors to take.

Due to the limited scope and availability of manufacturer training, the Assessment Study recommended that CALCTP be established as the “foundational component” for lighting control installer training.⁷⁰ This is exactly what CEE proposes. Requiring CALCTP certification ensures that installers of advanced lighting control systems have the minimal foundational knowledge needed to install the system. On top of this required training, installers may, as recommended by the Lighting Control Training Assessment Study, continue to voluntarily take manufacturer training on specific manufacturer products either through the CALCTP website or directly from the manufacturer.

⁶⁷ Ibid.

⁶⁸ Ibid at p. 83.

⁶⁹ Comments of CALCTP on RTR for the Lighting Controls Training Assessment (ASWB and ODC, Calmac ID #SCE0392.01) (Exhibit 5).

⁷⁰ ASWB/ODC, Lighting Control Training Assessment Study (April 8, 2016) at p. 83. [Available at http://www.energydataweb.com/cpucFiles/pdaDocs/1458/Lighting%20Controls%20Training%20Assessment%20Report_2016-02-29_Final.pdf.]

5. Response to Claim that Workforce Standards Will Be Addressed by the CEC's Responsible Contractor Policy

The IOUs also argue that the CPUC shouldn't address this issue in the Business Plan approval because it might be addressed later by the Responsible Contractor Policy that the California Energy Commission is required to develop under SB 350. This argument is speculative and specious.

First, the Responsible Contractor Policy focuses on “contractors,” not the workers who actually do the installation. The licensing of a contractor has no bearing on whether the employees who actually install the measure have the skills, training and qualifications necessary to ensure proper installation. To the contrary, the Business Plans acknowledge that the vast majority of residential HVAC installers have no training in any of the industry standards for HVAC installation and that up to 85% of replacement HVAC systems are installed or designed incorrectly.⁷¹ For a Responsible Contractor Policy to support workforce quality, it must be implemented *in conjunction with* workforce standard requirements for its workforce. A Responsible Contractor should be defined, in part, as one that ensures that his employees meet these standards.

Second, the SB 350 Responsible Contractor Policy is a general policy, not a policy for identifying and setting measure-specific workforce standards. Such a policy does not take the place of measure-specific standards, such as CALCTP advanced lighting control certification. Any electrical contractor is licensed to install advanced lighting controls, but specialized training is needed to ensure these controls are installed and perform correctly. While the Responsible Contractor Policy has the potential to effectively supplement workforce standards adopted as part of the Business Plan approval, it is not a substitute for such standards. Nor was that the intent of the Legislature.

Third, the content and timing of the SB 350 Responsible Contractor Policy is speculative. There is no indication that this policy will address measure-specific workforce standard requirements. Indeed, at the same time that the IOUs are claiming that this policy may address

⁷¹ See SCE Energy Efficiency Business Plan 2018-2025 at p. 63 (stating that there are a limited number of contractors who are even able to implement industry standards for HVAC quality installation); see also SDG&E at p. 216 (“trade professionals don’t have the technical knowledge, skills, or abilities to meet SDG&E’s savings goals”); PG&E Business Plan, Residential Appendix at p. 30 (finding “high failure rates for job performance on routine tasks” and finding that “less than half of HVAC technicians operating in California are aware of the Air Conditioning Contractors of America (ACCA) standards for work quality”).

workforce standard issues, they are also stating that they oppose requiring programs to set forth specific workforce standards.⁷² The IOUs claim that workforce standards should be ignored in the Business Plans because they might be tangentially addressed in the yet-to-be-commenced SB 350 responsible contractor proceeding is yet another example of their tactic of delay on this issue. After ten years, it is time for the CPUC to address this issue now.

Finally, this argument ignores the CPUC's direction to address workforce quality issue *in the Business Plans*.⁷³

I. Stakeholders Overwhelmingly Support Having the CPUC Adopt Explicit, Unequivocal Requirements for Workforce Standards as Part of Its Decision Approving the Business Plans

During the CAEECC proceedings and/or the business plan application proceedings, the following stakeholders (either individually or as members of the CEE) expressed support for having the CPUC set forth clear requirements to address workforce standards as part of its approval of the business plans: (1) BlueGreen Alliance; (2) Sierra Club California; (3) California Community Colleges Chancellor's Office; (4) the Coalition for Clean Air; (5) Joint Committee on Energy and Environmental Policy; (6) Coalition of California Utility Employees; (7) IBEW-NECA California State Labor Management Cooperation Committee; (8) the California Labor Federation; (9) Western States Council of Sheet Metal, Air, Rail and Transportation Workers; (10) California State Pipe Trades Council; (11) Operating and Stationary Engineers, locals 39 and 501; (12) Avery Energy Enterprise; (13) Cal SMACNA (California Association of Sheet Metal and Air Conditioning Contractors, National Association); (14) National Electrical Contractors Association (California); (15) Strategic Concepts in Organizing and Policy Education ("SCOPE"); (16) The Greenlining Institute; (17) Center for Sustainable Energy; (18) the Don Vial Center for Employment in the Green Economy; (19) the Office of Ratepayers Advocates; (20) Natural Resources Defense Council; and (21) The Utility Reform Network ("TURN"). In addition, the California Energy Efficiency Alliance comments in these proceedings expressed their support for requiring implementation of the recommendation to require CALCTP-certification to ensure that lighting controls are installed correctly and provide

⁷² See SDG&E Responses to CEE Data Request Questions 50, 51, 52, 53, 57 (Exhibit 3); SDG&E Responses to Disputes over CEE Data Request Questions 51, 52, 53, 57 (Exhibit 3); PG&E Responses to CEE Data Request Questions 12 & Revised Responses to CEE Data Request Questions 60, 62, 63, 64 (Exhibit 1); SoCalGas Response to CEE Data Request Questions 50, 51, 52, 53 (Exhibit 2).

⁷³ D. 16-08-019 at pp. 63, fn. 24 & 92.

the anticipated energy savings.⁷⁴ The alliance members included lighting designers, manufacturers, installers and academics.⁷⁵

The CPUC's guidance, however, should not simply be direction to "consider" standards in the future, write another report, or establish yet another working group. The IOUs have been "considering" workforce standards for almost a decade. The CPUC has already previously directed the utilities to come up with a plan to implement workforce standards. The resultant U.C. Berkeley EE Program Workforce Guidance Plan was finalized almost four years ago and has yet to see any of its specific workforce standards recommendations implemented.

V. THE DECISION APPROVING THE BUSINESS PLANS MUST ADDRESS WORKFORCE DIVERSITY AND INCLUSION GOALS

The ratepayer-funded energy efficiency programs create a billion dollar energy efficiency economy in California without making energy efficiency jobs actually accessible to disadvantaged workers.⁷⁶ The IOUs limit their efforts to providing low income and disadvantaged workers access to WE&T programs, yet at the same time argue that connecting disadvantaged workers to jobs is "out of scope" to their WE&T programs.

The Business Plans energy efficiency programs should be designed to support a pipeline for disadvantaged workers that leads to job placement and retention in the energy efficiency sectors. IOUs should leverage their relationships with construction contractors who participate in IOU programs, to help develop pathways for disadvantaged workers into higher skilled and higher wage energy efficiency-oriented construction jobs and to incorporate workforce qualification, diversity and inclusion goals into their energy efficiency programs and third-party contractor selection process.

The CPUC needs to impose specific requirements and metrics to ensure that workers from low-income, minority and disadvantaged communities are actually participating in the multi-billion dollar energy efficiency economy created by the Business Plans. Without such requirements, disadvantaged worker access will be limited to access WE&T programs with no

⁷⁴ California Energy Efficiency Alliance Response to "Questions for All Parties" Set Forth in Attachment B of the Scoping Memo and Ruling of Assigned Commissioner and Administrative Law Judges (June 7, 2017) at pp. 6-7.

⁷⁵ California Energy Efficiency Alliance Response to "Questions for All Parties" Set Forth in Attachment B of the Scoping Memo and Ruling of Assigned Commissioner and Administrative Law Judges (June 7, 2017) at pp. 1 (listing members as including International Association of Lighting Designers, Lutron Electronics Company, U.C. Davis California Lighting Technology Center, Morrow-Meadows Corporation, SMART Light Systems, and others).

⁷⁶ For purposes of these comments, CEE defines disadvantaged workers as workers from minority and low-income communities and those with barriers to employment (e.g. formerly incarcerated, homeless, veterans, and those with disabilities).

documented connection to providing meaningful job outcomes.

The IOUs response to CEE's recommendations to address this issue has been to state that they will not take any action to require or encourage workforce diversity and inclusion goals without explicit direction and authorization from the CPUC.⁷⁷ CEE urges the CPUC to provide this direction and authorization in its decision approving the business plans.

The IOUs failure to comply with prior CPUC guidance on this issue demonstrates that the CPUC's approval needs to set forth specific requirements that the IOUs must follow in developing their programs. Any ambiguity will continue to be met with inaction.

The Long Term Energy Efficiency Strategic Plan directs the investor-owned utilities ("IOUs") to coordinate training resources with the low income energy efficiency program ("LIEE," now called the Energy Savings Assistance Program) to "expand employment options for those in disadvantaged communities beyond the LIEE Program itself."⁷⁸ Consistent with this guidance, the Decision Approving 2013-2014 Energy Efficiency Programs and Budgets expressly asked the IOUs to "develop pilot approaches collaboratively with stakeholders to incorporate workforce diversity and inclusion goals into their third-party contractor selection process."⁷⁹ Data requests confirm, however, that the *utilities never complied with this request*.⁸⁰

In addition, the IOUs February 23, 2015 Tier 2 Advice Letter made an express commitment to take steps to establish "targeted hire goals for contractors that are preselected by the IOUs or have a direct contracting relationship with the IOUs." Data requests confirm that no steps were taken to implement this action either, and none are planned to be taken.⁸¹

Guidance Decision 16-08-019 affirmed that the applicability of these prior orders to the 2018-2025 Business Plans.⁸² The IOUs, however, again failed to address this issue in their proposed Business Plans.

⁷⁷ SDG&E Response to CEE Data Request Question 49 (Exhibit 3); SoCalGas Response to CEE Data Request Question 49 (Exhibit 2); PG&E Response to CEE Data Request Question 56 (Exhibit 1).

⁷⁸ California Energy Efficiency Strategic Plan, January 2011 update, p. 74.

⁷⁹ D 12-11-015, pp. 84, 126. See also Guidance Decision D.16-08-019 at p. 63, fn. 24 (affirming continued applicability of prior workforce orders).

⁸⁰ SoCalGas Response to CEE Data Request Question 1 (Exhibit 2); SDG&E Response to CEE Data Request Question 1 (Exhibit 3); SCE Response to CEE Data Request Question 1 (Exhibit 4); PG&E Response to CEE Data Request Question 1 (Exhibit 1).

⁸¹ SoCalGas Response to CEE Data Request Question 7 (Exhibit 2); SDG&E Response to CEE Data Request Question 7 (Exhibit 3); SCE Response to CEE Data Request Question 7 (Exhibit 4); PG&E Response to CEE Data Request Question 7 (Exhibit 1).

⁸² Guidance Decision D.16-08-019 at p. 63, fn. 24.

Furthermore, PG&E now claims that (1) it is not authorized to require programs to be crafted in a manner that incorporates workforce diversity and inclusion goals, and (2) it is prohibited from establishing such goals pursuant to General Order 156 and the holding of *PegaStaff v. PG&E* (2015) 239 Cal.App.4th 1303, 1327.⁸³ The CEE disagrees with both of these claims. CEE requests that the CPUC clarify this issue in its order approving the Business Plans so that IOUs clearly understand what they are allowed to do and what they are being directed to do.

As discussed above, the CPUC has already expressly authorized the utilities to incorporate workforce diversity and inclusion goals into their third-party contractor selection process.⁸⁴ Moreover, General Order 156 and *PegaStaff* are not applicable. The prohibitions to which General Order 156 and the *PegaStaff* case refer are on establishing quotas, not on establishing goals.⁸⁵ In addition, General Order 156 and the *PegaStaff* case are applicable only to requirements enacted to increase participation of women-owned, minority-owned, disabled veteran-owned and LGBT-owned business enterprises in CPUC procurement. Neither General Order 156 nor the *PegaStaff* decision addresses the incorporation of workforce diversity and inclusion goals into the IOU third-party contractor selection process. The IOUs' "Diverse Business Enterprises" goals developed pursuant to Order 158 only expand opportunities for diverse business *owners* contracting directly with the utilities. They do not address access for disadvantaged *workers* or address the installation work created by programs that don't involve direct contracting with the utilities, such as through energy efficiency rebates or subsidies.

While the CEE strongly supports the proposed Career Workforce Readiness ("CWR") program, this program alone will not provide disadvantaged workers access to the vast majority of jobs created by the IOU energy efficiency programs. PG&E's Business Plan expressly states that job placement is not an activity that will be funded through the CWR program.⁸⁶ SDG&E's Business Plan also asserts that connecting disadvantaged workers to jobs is "out of scope," arguing that its WE&T program "is not a workforce development nor job creation program."⁸⁷

CEE strongly disagrees with this IOU imposed limitation. The CWR should allow and even require funding to be used for job placement in the energy efficiency sector for those

⁸³ PG&E Response to CEE Data Request Question 1 (Exhibit 1).

⁸⁴ D.12-11-015, at p. 84

⁸⁵ *PegaStaff v. PG&E* (2015) 239 Cal.App.4th 1303, 1327.

⁸⁶ PG&E Energy Efficiency Business Plan 2018-2025, Statewide Administration chapter at p. 25

⁸⁷ SDG&E's Energy Efficiency Business Plan, 2018-2025, January 2017, Appendix F External Stakeholder Observations, ID #075.

organizations not already funded for energy efficiency job placement. Simply providing disadvantaged workers training is not enough; training must lead to employment opportunities and family-sustaining, career-track jobs. Without both training *and* job placement strategies, the Business Plans will fail to “expand employment options for those in disadvantaged communities.”

CEE has proposed addressing this issue by requiring bid proposals and implementation plans to describe *if and how* their proposal supports participation by disadvantaged workers in the energy efficiency jobs created by the proposal, including any applicable workforce diversity and inclusion goals, or applicable employment partnerships with state-certified apprenticeship programs, community colleges or other organizations that have a proven track record of training and providing career opportunities to disadvantaged workers. CEE is not suggesting that energy efficiency programs include set-asides, quotas, preferences, or preferential treatment. Rather it wants to ensure that opportunities to provide job access to disadvantaged workers are considered in the design phase of energy efficiency programs.

The IOUs have been willfully ignoring the CPUC for years on this issue. Given their intransigence on the issue of inclusion goals and their expressed desire for more explicit direction and authorization from the CPUC, CEE respectfully requests that the CPUC impose the following requirements as conditions of its approval of the IOU Business Plans:

- (1) All bid solicitation proposals and implementation plans for energy efficiency programs shall describe if and how the proposal supports participation by disadvantaged workers in the energy efficiency jobs created by the proposal, including any applicable workforce diversity and inclusion goals or applicable employment partnerships with state-certified apprenticeship programs, community colleges or other organizations that have a proven track record of training and providing career opportunities to disadvantaged workers.
- (2) All downstream programs shall track the percentage of incentives verified to have been installed by contractors that have demonstrated a commitment to provide career pathway opportunities to workers from disadvantaged communities through the establishment of workforce diversity and inclusion goals or applicable employment partnerships with state-certified apprenticeship programs, community colleges or other organizations that have a proven track record of

training and providing career opportunities to disadvantaged workers.

- (3) The IOUs are expressly authorized to establish requirements that contractors preselected by the IOUs or that have a direct contracting relationship with the IOUs demonstrate a commitment to provide career pathway opportunities to workers from disadvantaged communities through the establishment of workforce diversity and inclusion goals or applicable employment partnerships with state-certified apprenticeship programs, community colleges or other organizations that have a proven track record of training and providing career opportunities to disadvantaged workers.
- (4) The goal of connecting disadvantaged workers to energy efficiency jobs is within the scope of the IOU WE&T and energy efficiency programs.
- (5) The IOUs shall provide preference to WE&T program proposals that further the goal of connecting disadvantaged workers to energy efficiency jobs either directly or through partnerships with state-certified apprenticeship programs, community colleges or other organizations that have a proven track record of training and providing career opportunities to disadvantaged workers.

VI. THE DECISION APPROVING THE BUSINESS PLANS MUST ADDRESS WORKFORCE EDUCATION AND TRAINING ALIGNMENT NEEDS

The Long Term Strategic Energy Efficiency Plan sets a goal to ensure that “by 2020, California’s workforce is trained and fully engaged to provide the human capital necessary to achieve California’s economic energy efficiency and demand-side management potential.” With the passage of SB 350 and other aggressive California energy efficiency goals, the need for an adequately trained and skilled workforce is even greater today than when the original 2020 goal was set in 2008.

The Business Plan’s WE&T goals, strategies and metrics, however, fail to set forth a path to meeting this goal. The Plans also fail to demonstrate a connection between the knowledge, skills and abilities (“KSAs”) needed to ensure proper installation of program energy efficiency measures and the WE&T activities proposed. Almost ten years after being directed to ensure an adequately trained workforce was fully engaged to ensure energy efficiency measures achieved their potential savings, the IOUs now state that they have not determined the KSAs necessary to

ensure quality installation for *any* of their incentive measures!⁸⁸ The IOUs have further confirmed that they will not require any of their incentive programs adopted under the 2018-2025 Business Plan to determine the KSAs necessary to ensure quality installation unless the CPUC expressly orders it.⁸⁹ The refusal to determine the KSAs needed to properly install energy efficiency measures creates a clear and direct barrier to meeting the 2020 trained workforce goal. The IOUs have no idea what training is needed or who needs it.

Insufficient alignment between the WE&T programs and the State’s core occupational training institutions, such as community colleges, apprenticeship programs, CSUs, UCs, CBOs and workforce development boards, is also a major barrier to achieving the State WE&T goals. The individual WE&T programs funded by the IOUs often provide only one piece of the knowledge, skills and abilities needed to ensure quality installation. Without aligning these programs with broader occupational training, certification, apprenticeship and accredited degree offerings, there is little indication that the WE&T programs successfully result in quality installation outcomes.

Particularly troubling are the IOUs recent statements that ensuring workforce quality is “out of scope” of the WE&T programs. Similarly, the IOUs have claimed that increasing the number of industry certifications earned by energy efficiency workers is not within the WE&T program’s scope. The CEE disagrees with both of these claims. These positions directly conflict with the direction given to the IOUs by the California Long Term Strategic Energy Efficiency Strategic Plan to ensure a trained workforce.

A new mindset is needed to transition the relationship between the IOUs and workforce professionals from the current “one-off” projects conceived by the IOUs to sustainable initiatives that have lasting impact. This requires seeking and tracking outcomes beyond completion of an individual WE&T course.

Consistent with the guidance in California Energy Commission’s 2016 Existing Building Energy Efficiency Action Plan Update, the WE&T plans should shift their focus to “workforce

⁸⁸ SoCalGas Response to CEE Data Request Question 28 (Exhibit 2); SDG&E Response to CEE Data Request Question 29 (Exhibit 3); SCE Response to CEE Data Request Question 33 (Exhibit 4); PG&E Response to CEE Data Request Question 26 (Exhibit 1).

⁸⁹ PG&E Response to CEE Data Request Question 12(b) (Exhibit 1).

alignment.”⁹⁰ Effective workforce transformation requires WE&T programs to be aligned with State policy, and to leverage the existing infrastructure of other training institutions and workforce services providers. Metrics need to be established to demonstrate the success of the WE&T programs in supporting (1) State mandates, (2) industry priorities, and (3) the State’s primary education and training institutions. To be successful in transforming the market, these efforts also need to be aligned with workforce qualification requirements.

At the same time that the IOUs have failed to lead transformation of the industry’s workforce, other agencies and educational and occupational training institutions have been moving forward independently. In its recent update to the Existing Building Energy Efficiency Action Plan, the California Energy Commission sets forth a strategic plan to achieve alignment between State mandates, industry priorities, and the State’s primary education and training institutions.⁹¹ The California Energy Commission has now entered into a contract for the development of a Workforce Alignment Action Plan.⁹² The contract calls for multiple industry forums and surveys to facilitate the development of a plan for workforce alignment.⁹³ Among the goals of the Workforce Alignment Action Plan are:

- Identify opportunities within WE&T programming to include critical skills identified by industry professionals/employers as current gaps
- Identify opportunities to redesign and/or align WE&T programs to better bridge gaps between secondary and postsecondary institutions, and training and/or employment opportunities
- Identify curriculum needs related to desired workforce outcomes
- Understand skills gaps for the incumbent and emerging workforce
- Identify opportunities to engage and re-skill the incumbent workforce, particularly those within disadvantaged/underserved communities

⁹⁰ California Energy Commission, 2016 Existing Buildings Energy Efficiency Action Plan Update at pp. 50-53 [available at http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf].

⁹¹ California Energy Commission, 2016 Existing Buildings Energy Efficiency Action Plan Update at pp. 50-53 [available at http://docketpublic.energy.ca.gov/PublicDocuments/16-EBP-01/TN214801_20161214T155117_Existing_Building_Energy_Efficiency_Plan_Update_Deceber_2016_Thi.pdf].

⁹² Workforce Alignment, Energy Efficiency Collaborative Facilitation, and Benchmarking Outreach Contract (Agreement 400-16-008) [available at http://www.energy.ca.gov/business_meetings/2017_packets/2017-06-14/Item_05_400-16-008.pdf].

⁹³ Workforce Alignment, Energy Efficiency Collaborative Facilitation, and Benchmarking Outreach Contract (Agreement 400-16-008), Exhibit A, Scope of Work at p. 15 [available at http://www.energy.ca.gov/business_meetings/2017_packets/2017-06-14/Item_05_400-16-008.pdf].

- Understand the unique constraints for disadvantaged communities/workers

CEE urges the CPUC to require the IOUs to support the Workforce Alignment Action Plan development process and to shape their WE&T programs based on its guidance. CEC recommends that the following conditions of approval be imposed as part of any decision approving the business plans:

- (1) WE&T programs shall support the Energy Commission’s Workforce Alignment Action Plan development process;
- (2) WE&T programs shall be aligned with the recommendations of the Workforce Alignment Action Plan;
- (3) WE&T bid proposals and implementation plans shall set forth if and how the program aligns with or supports broader occupational training, certification, apprenticeship and accredited degree offerings; and
- (4) WE&T bid proposals and implementation plans shall set forth if and how the program aligns with goals for recruiting, training and placing disadvantaged workers in good jobs, including implementer qualifications, partnerships with apprenticeship programs, partnerships with community-based organizations that provide job placement, etc.

VII. THE DECISION MUST ENSURE SUFFICIENT OVERSIGHT AND REVIEW, INCLUDING THE USE OF QUALIFIED INDEPENDENT EVALUATORS AND PROCUREMENT REVIEW GROUPS

CEE supports adoption of a rigorous Independent Evaluator (“IE”) and Procurement Review Group (“PRG”) process that will provide meaningful independent oversight and review. The IEs and PRGs must have an extensive background in demand side programs. Existing supply side IEs and PRGs are not qualified to carry out these functions. The CEE also supports ORA’s recommendation to require contract approval via the Advice Letter process. In addition, the CEE urges the CPUC to ensure that the energy efficiency programs have adequate oversight, bid solicitation, and implementation requirements. The CEE has set forth its position on these issues in its most recent filings in this proceeding, and incorporates those filings by reference into these Final Comments.

VIII. THE DECISION MUST ENSURE MEANINGFUL IMPLEMENTATION OF AB 802 METER-BASED VERIFICATION GOALS

CPUC direction is also needed to ensure meaningful implementation of the AB 802 goal of increasing the percentage of energy efficiency incentives that utilize meter-based verification. Without a metric, implementation of meter-based verification is likely to be perfunctory and the vast majority of projects will continue to rely on deemed or estimated savings that might never actually materialize. Each PA should set forth in their Business Plans goals and metrics for the minimum percentage of incentive measures whose energy efficiency savings will be verified by meter-based savings (e.g. 10% by 2019, 20% by 2020, etc.).

In addition, the CPUC should require each bid proposal to provide a justification if meter-based M&V is not required. In response to Data Requests, SCE, SDG&E and SoCalGas each stated they would support such a requirement, while PG&E stated that it might support such a requirement.⁹⁴

IX. CONCLUSION

The CEE appreciates the CPUC's consideration of these comments.

Dated: Sept. 25, 2017

Respectfully submitted,

/s/

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⁹⁴ SDG&E Response to CEE Data Request Question 54 (Exhibit 3); SCE Response to CEE Data Request Question 54 (Exhibit 4); SoCalGas Response to CEE Data Request Question 54 (Exhibit 2); PG&E Response to CEE Data Request Question 61 (Exhibit 1).